

Richard N. Zare: Curriculum Vitae

BIOGRAPHICAL INFORMATION

Born: Cleveland, Ohio, November 19, 1939
Married: Susan Shively Zare
Children: Bethany Jean; Bonnie Sue; Rachel Amdur

EDUCATION AND PROFESSIONAL EXPERIENCE

1961 B.A. (Chemistry and Physics), Harvard University
1961--1963 Postgraduate work, University of California at Berkeley
1964 Ph.D. (Chemical Physics), Harvard University, (NSF Predoctoral Fellow)
1964--1965 Postdoctoral Research Associate, Joint Institute for Laboratory Astrophysics (JILA), University of Colorado
1965--1966 Assistant Professor, Department of Chemistry, Massachusetts Institute of Technology
1966--1968 Assistant Professor, Department of Physics and Astrophysics, University of Colorado
1968--1969 Associate Professor, Department of Physics and Astrophysics and Department of Chemistry, University of Colorado
1969--1977 Professor, Department of Chemistry, Columbia University
1975--1977 Higgins Professor of Natural Science, Columbia University
1977-- Professor, Department of Chemistry, Stanford University
1980--1985 Shell Distinguished Professor of Chemistry, Stanford University
1982 Christensen Fellow, St. Catherine's College, Oxford University
1984--1986 Stanford University Fellow
1985-- Fellow Adjoint, Joint Institute for Laboratory Astrophysics, University of Colorado
1987-- Marguerite Blake Wilbur Professor in Natural Science, Stanford University
1992-- Professor of Physics, Stanford University
2006-- Howard Hughes Medical Institute Professor, Stanford University

HONORS AND AWARDS

Priestley Medal, American Chemical Society, to be awarded in March, 2010

Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, U.S. Office of Science and Technology Policy, 2009

F. A. Cotton Medal for Excellence in Chemical Research, Texas A&M University, Department of Chemistry, and Texas A&M Section, American Chemical Society, 2009

George C. Pimentel Award in Chemical Education, American Chemical Society, 2008

H. Julian Allen Award, in recognition of co-authorship of "UV Irradiation of Polycyclic Aromatic Hydrocarbons in Ices: Production of Alcohols, Quinones, and Ethers," *Science* **283**, 1135-1138 (1999), NASA Ames Research Center, 2007

Dudley R. Herschbach Award for Excellence in Research in the field of Collision Dynamics, Dynamics of Molecular Collisions Meeting, Santa Fe, 2007

Honorary Doctorate, Chalmers Institute of Technology, Göteborg, Sweden, 2007

Oesper Award, University of Cincinnati and Cincinnati Section of the American Chemical Society, 2006

Chandler Medal, Department of Chemistry, Columbia University, 2005

Pupin Medal "for service to the nation," Columbia University School of Engineering, 2005

Wolf Prize in Chemistry, Israel, 2005

Nichols Medal, New York Section of the American Chemical Society, 2005

James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry, Northeastern Section of the American Chemical Society, 2004

Laurance and Naomi Carpenter Hoagland Prize for Excellence in Undergraduate Education, Stanford University, 2003

Honorary Doctorate, Université P. Sabatier, Toulouse, France, 2003

Distinguished Chemist Award, American Chemical Society Sierra Nevada Section, 2002

Honorary Doctorate, Hunan University, 2002

California Separation Science Society (CaSSS) Scientific Achievement Award, 2000-2001

Honorary Doctorate, D Univ, The University of York, York, UK, 2001

Honorary Doctorate, State University of West Georgia, 2001

2000-2001 Madison Marshall Award, American Chemical Society, North Alabama, 2001

Faraday Medal & Lectureship, Royal Society of Chemistry, 2001

Charles Lathrop Parsons Award, American Chemical Society, 2001, "to recognize outstanding public service by a member of the American Chemical Society"

Nobel Laureate Signature Award for Graduate Education, American Chemical Society, 2000

Arthur L. Schawlow Prize in Laser Science, American Physical Society, 2000

Doctor of Philosophy, honoris causa, Uppsala University, Uppsala, Sweden, 2000

The Welch Award in Chemistry, 1999

Doctor of Science, honoris causa, Columbia University, 1999

E. Bright Wilson Award in Spectroscopy, 1999

Distinguished Service Award, National Science Board, 1998

Centennial Medal, Graduate School of Arts and Sciences, Harvard University, 1998

G. M. Kosalapoff Award, Auburn Section, American Chemical Society, 1998

ACS Award in Analytical Chemistry, 1998

Eastern Analytical Symposium Award for Outstanding Achievements in the Field of Analytical Chemistry, 1997

Allan V. Cox Medal for Faculty Excellence Fostering Undergraduate Research, Stanford University, 1997

NASA Exceptional Scientific Achievement Award, 1997

Phi Beta Delta, 1997 (Honorary Member)

California Scientist of the Year, 1997

The Bing Fellowship Award, "to recognize excellence in teaching and commitment to undergraduate education," 1996

ACS Division of Analytical Chemistry Award in Chemical Instrumentation, 1995

Dannie-Heineman Preis, Akademie der Wissenschaften zu Göttingen, 1993

Doctor of Science, Honorary Degree, Eidgenössische Technische Hochschule, Zürich, Switzerland, 1993

The Pauling Award, Puget Sound, Oregon and Portland Sections of the American Chemical Society, 1993

The Harvey Prize, Technion, Israel Institute of Technology, 1993

Doctor of Science, Honorary Degree, Northwestern University, 1993

National Academy of Sciences Award in Chemical Sciences, for "pioneering laser-based techniques, deep insights, and seminal contributions, which have influenced every facet of chemical reaction dynamics," 1991

Peter Debye Award in Physical Chemistry, American Chemical Society, 1991

Willard Gibbs Medal, Chicago Section, American Chemical Society, 1990

Doctor of Science, Honorary Degree, University of Arizona, 1990

ISCO Award for Significant Contributions to Instrumentation for Biochemical Separations, 1990

Dean's Award for Excellence in Teaching, Stanford University, 1987

Kirkwood Award Medal, Yale University, New Haven Section of the American Chemical Society, 1986

Michelson-Morley Award, Case Institute of Technology, Case Western Reserve University, 1986

Irving Langmuir Prize, American Physical Society, for "seminal innovations in developing many experimental and theoretical processes," 1985

Harrison Howe Award, Rochester Section, American Chemical Society, 1985

Remsen Award, Maryland Section, American Chemical Society, 1985

Evans Award, The Ohio State University, 1984

National Medal of Science, for "seminal contributions to molecular spectroscopy, photochemistry, and chemical reaction dynamics, especially for his incisive theoretical methods and the development of the experimental technique of laser-induced fluorescence," 1983

Spectroscopy Society of Pittsburgh Award, 1983

Earle K. Plyler Prize, American Physical Society, 1981

Michael Polanyi Medal, 1979; presented at the Faraday Discussions of the Chemistry Society, Birmingham, England

Fresenius Award, 1974. Given by Phi Lambda Upsilon Honorary Chemical Society to the most outstanding chemist under age 35

Alfred P. Sloan Fellowship, 1967-1969

Phi Beta Kappa, 1961

MEMBERSHIPS, COMMITTEES, BOARDS, ETC.

Associate Fellow, TWAS, Academy of Sciences for the Developing World, 2009

Fellow, American Chemical Society, 2009

Honorary Fellow, Indian Academy of Sciences, 2008

Fellow, Michelle R. Clayman Institute for Gender Research, 2008

Fellow, Association for Women in Science, 2008

Honorary Fellow, Chemical Research Society of India (CRSI), 2007

Advisor, Camille and Henry Dreyfus Foundation, 2007

President, Molecular Frontiers Foundation, 2006

Senior Presidential Advisor, Hunan University, 2006

Chair, Academic Advisory Committee, Biomedical Engineering Center, Hunan University, 2006

Professor of Biomedical Engineering Center, Hunan University, 2006

Faculty Affiliate, Michelle R. Clayman Institute for Gender Research, 2006-2008

Member of the European Academy of Sciences, elected 2004

Foreign Member, Swedish Royal Academy of Engineering Sciences (IVA), elected 2004

Foreign Member, Chinese Academy of Sciences (CAS), elected 2004

Honorary Member, The World Jewish Academy of Sciences, 2004

Honorary Fellow, Royal Society of Chemistry, 2001

Foreign Council Member, Institute for Molecular Science (Japan), 1999-2001

Foreign Member, Royal Society (London), elected 1999

Chairman, President's National Medal of Science Selection Committee 1997-2000

Fellow, California Council on Science and Technology, 1997
Council Member, National Academy of Sciences, 1995-1998
Chair, Commission on Physical Sciences, Mathematics, and Applications, National Research Council, 1992-1995
Member, National Science Board, 1992-1998; Chairman, National Science Board, 1996-1998;
Vice-Chair of Board of Directors, Annual Reviews, Inc., 1992-1995; Chairman of the Board of Directors, Annual Reviews Inc., 1995-
Honorary Fellow, California Academy of Sciences, elected 1991
Fellow, Optical Society of America, elected 1991
Member, American Philosophical Society, elected 1991
Member, Government-University-Industry Research Roundtable of the National Academy of Sciences, 1989-1992
Chairman, Panel on Basic Science and Technology Centers, National Academy of Sciences, 1987
Member, Directed Energy Weapons study panel, American Physical Society (APS) 1985-1987
Fellow, American Association for the Advancement of Science, elected 1985
Chairman, Division of Chemical Physics (DCP) American Physical Society (APS) 1985-1986,
Vice-Chairman, 1984-1985
Member, Committee on Atomic and Molecular Science (CAMS), National Research Council, 1983-1985
Editor, Chemical Physics Letters, 1982-1985
Chairman, National Science Foundation Advisory Panel (Chemistry Division), 1980-1982
Member, National Academy of Sciences, elected 1976
Member, American Academy of Arts and Sciences, elected 1976
Fellow, The American Physical Society, elected 1969
Non-Resident Fellow, Joint Institute of Laboratory Astrophysics, 1969-
Member, The Chemical Society (London)

Editorial Advisory Boards:

Chemistry World
Honorary Board member of Physical Chemistry and Chemical Physics (PCCP)
Analytical Sciences
Angewandte Chemie
Central European Journal of Chemistry
ChemPhysChem
Chemical Physics
Chemical Physics Letters
Molecular Physics
Journal of Separation Sciences
Chinese Journal of Chromatography

Previously on Board of Editors:

The Journal of Molecular Spectroscopy
Science
Cambridge University Press
Applied Physics
Accounts of Chemical Research
Analytical Chemistry
Chemical & Engineering News
The Journal of Chemical Physics
The Journal of Physical Chemistry

Optics Letters

Scientific Advisory Boards:

Pufendorf Institute, Lund University, Lund, Sweden
International Advisory Board of the State Key Laboratory of Physical Chemistry of Solid Surfaces (PCOSS), Xiamen, China
Hybrid Vigor Institute
Fluidigm
Eksigent, Inc.
Pharmacyclics, Inc.
Prolinx, Inc.
Cepheid, Inc.
Picarro
Wonderfest
Advisory Council for Chemistry at Oxford
Electronic Nobel Museum/Young Scholars Program

Previously on Scientific Advisory Board:

Faraday Transactions
Quanta-Ray
Miller Institute
Affymax, Inc.
IBM

NAMED LECTURESHIPS

NanQiang Lecture, Xiamen University, Xiamen, China 2009

Rajiv Gandhi Science and Technology Lecture, Bangalore, India, 2009

Dr. Emily Davis and Dr. Homer C. Weed Lecture, Department of Chemistry and Biochemistry, University of Arizona, 2009

A. R. Gordon Distinguished Lectures Series, University of Toronto, Toronto, Canada, 2009

Abbott Chemistry Lectures, University of North Dakota, 2009

Phyllis Johnson Patrick Lecture, Kansas State University, 2009

Platinum Jubilee Lecture, Indian Academy of Sciences, Bangalore University, Bangalore, India, 2009

[Robert S. Mulliken Lecture, University of Georgia, 2008](#)

Leland Wilson Endowed Lecture, University of Northern Iowa, 2008

Frank Whitmore Lecture, The Pennsylvania State University, 2008

Helen Murray Free Endowed Lecture, University of Wooster, 2008

Plenary Lecture, 10th National Symposium, Chemical Research Society of India, Bangalore, India, 2008

William A. Chupka Lectureship in Physical and Theoretical Chemistry, Yale University, 2007

The Arnold C. Ott Lectureship in Chemistry, Grand Valley State University, 2007

3M/Ronald A. Mitsch Lecture in Chemistry, Hamline University, 2007

18th Leopold Marcus Lecture, Department of Chemistry, Washington University in St. Louis, 2007

Nobel Laureates 2007 Beijing Forum on Energy and the Environment, Beijing, China, 2007

Plenary Lecture, Ninth Annual Beckman Scholars Symposium, Irvine, California 2007

[Roberts Lecturer](#), University College, London, UK, 2007

Distinguished Frontiers Speaker, The University of Toledo, 2007

Ritter Memorial Lectures, Miami University of Ohio, 2007

Keynote Speaker, Honors Week Celebration, Kent State University, 2007

Morino Lectures, University of Tokyo and Kyoto University, Japan, 2007

Plenary Speaker, New Zealand Institute of Chemistry Conference, Rotorua, New Zealand, 2006

Sir Neil Waters Distinguished Lectureship, Massey University, Palmerston North, New Zealand, 2006

Michael Faraday Lecture, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India, 2006

Oesper Lecture, University of Cincinnati, 2006

Mission Bay Seminar, University of California at San Francisco, 2006

Cal Giddings Lecture, University of Utah, 2006

Keynote Lecture, Biennial Conference on Chemical Education (BCCE), Purdue University, 2006

Plenary Lecture, International Workshop on Bioanalytical Chemistry and Biomedical Engineering, Hunan University, Changsa, China, 2006

Distinguished Zhang Dayu Lecture, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China, 2006

Lectures in Modern Chemistry, Department of Chemistry, University of British Columbia, Vancouver, BC, Canada, 2006

Spring Colloquium Speaker, Department of Chemistry & Biochemistry, University of Washington, 2006

Frontiers in Chemical Research Lecturer, Texas A & M University, 2006

G. Wilse Robinson Lecturer, Texas Tech University, 2006

Vessman Lecture, Chalmers University, Göteborg, Sweden, 2006

Plenary Speaker, Photon Science Institute Launch, University of Manchester, Manchester, UK, 2006

Purves Lecturer, McGill University, Montreal, Canada, 2005

Plenary Speaker, Federation of Analytical Chemistry and Spectroscopy Societies (FACCS), Quebec City, Canada, 2005

Plenary Speaker, ScotCHEM Launch, Edinburgh, Scotland, 2005

Plenary Speaker, CONNECT 2005, 12th Royal Australian Chemical Institute (RACI) National Convention, Sydney, Australia, 2005

PECRUM Lecturer (Perspective on Chemistry Research at the University of Michigan), 2005

Keynote Speaker, Atlanta Undergraduate Research Alliance (AURA), 2005

Arthur D. Little Lecturer, MIT, 2004

William E. Mahoney Lecturer, University of Massachusetts Amherst, 2004

Mitchum E. Warren, Jr. Lecturer, Department of Chemistry, Vanderbilt University, 2004

Robert A. Jenkins Memorial Lecturer, Department of Chemistry, University of Wyoming, 2004

Charles Herron Lecturer, Department of Chemistry and Biochemistry, Florida State University, 2004

Noyes Lecturer, Department of Chemistry, University of Oregon, 2004

Plenary Lecturer, Singapore International Chemistry Conference 3, Singapore, 2003

S. Dexter Squibb Distinguished Lecturer, Department of Chemistry, University of North Carolina, 2003

Haberman Lecturer, Department of Chemistry, Marquette University, 2002

Samuel M. McElvain Seminar, Department of Chemistry, University of Wisconsin-Madison, 2002

George Gamow Memorial Lecture, University of Colorado at Boulder, 2002

L. Carroll King Memorial Lectures, The Department of Chemistry, Northwestern University, 2001

R. T. Majors Lecturer, The Department of Chemistry, University of Connecticut, 2001

Flygare Memorial Lecturer, Department of Chemistry, University of Illinois at Urbana-Champaign, 2001

Faraday Lecturer, Royal Society of Chemistry, 2001

Hirschmann Lecturer, Oberlin College, 2000

Carr Lecturer, Department of Chemistry, Coe College, 2000

Manuel G. Menendez Memorial Lecturer, Department of Physics and Astronomy, University of Georgia, 2000

Anderson Lecture, Department of Physics and Astronomy, Denison University, 2000

The Timothy J. O'Leary, S. J. Distinguished Scientist Lecturer, The Science Departments of Gonzaga University, 2000

Lyle Ramsay Dawson Lecturer, Department of Chemistry, University of Kentucky, 1999

S. C. Lind Lecture, East Tennessee Section of the American Chemical Society, 1999

Charles M. Knight Lecturer, Department of Chemistry, The University of Akron, 1999

The O. K. Rice Lecturer, Department of Chemistry, The University of North Carolina at Chapel Hill, 1999

The Lloyd B. Thomas Chemistry Scholars Lecturer, Department of Chemistry, University of Missouri, 1999

The Joe L. Franklin Memorial Lecture, Department of Chemistry, Rice University, 1999

Harry Emmett Gunning Lecturer, Department of Chemistry, University of Alberta, 1998

Clifford C. Hach Lecturer, Department of Chemistry, University of Wyoming, 1998

Barre Lecturer, University of Montreal, Canada, 1998

Kosalopoff Lecturer, Auburn University, 1998

Centenary Lecturer, Royal Society of Chemistry, 1998

Anson L. Clark Memorial Lecturer, University of Texas at Dallas, 1998

Billings Distinguished Lecturer, Montana State University, 1998

Claude Worthington Benedum Foundation Lecturer, West Virginia University, 1997

Robert Maurer Lecture, Department of Physics, University of Arkansas, 1997

Frank G. and Jean M. Chesley Lectureship, Carleton College, 1997

Jacob Bigeleisen Endowed Lecture, State University of New York Stony Brook, 1996

Gooch-Stephens Lectureship, Baylor University, 1996

DuPont Distinguished Speaker, Indiana University, 1996

G.B. Kistiakowsky Lecturer, Harvard University, 1996

Alexander M. Cruickshank Lecturer, Gordon Research Conference, 1996

Leroy Eyring Lecturer, Arizona State University, 1995

Velmer Fassel Lecturer, Iowa State University, 1995

Richard C. Lord Lecturer, Massachusetts Institute of Technology, 1995

Fred J. Robbins Lecturer, Pomona College, 1995

Moses Gomberg Lecturer, University of Michigan, 1995

Lemieux Lecturer, University of Ottawa, 1995

Frederic LeRoy Conover Memorial Lecturer, Vanderbilt University, 1994

Raymond Lemieux Lecturer, University of Ottawa, 1994

Peter Smith Lecturer, Duke University, 1994

Paul C. Cross Lecturer, University of Washington, 1993

Linus Pauling Distinguished Lecturer, Oregon State University, 1993

R.B. Bernstein Memorial Lecturer, UCLA, 1993

Nalbandov Lecturer, University of Illinois, 1993

George C. Pimental Lecturer, UC Berkeley, 1992

Robert S. Mulliken Lecturer, University of Chicago, 1992

Arthur D. Little Lecturer, Northeastern University, 1991

J. T. Donald Lecturer, McGill University, 1991

Frederick Kaufman Lecturer, University of Pittsburgh, 1991

Peter A. Leermakers Symposium Lecturer, Wesleyan University, 1991

Russell Marker Lecturer in the Chemical Sciences, Pennsylvania State University, 1991

Ernest H. Swift Lecturer, California Institute of Technology, 1991

Amy/Mellon Lecturer, Purdue University, 1990

Distinguished Scientists Lecturer, Trinity University, 1990

E. K. C. Lee Lecturer, University of California at Irvine, 1989

Geoffrey Frew Fellow, Australian Academy of Sciences, 1989

Max T. Rogers Lecturer, Michigan State University, 1989

Joel Broberg Lecturer in Chemistry, North Dakota State University, 1989

Gustavson Lecturer, University of Denver, 1989

Kennedy Lecturer, Washington University, St. Louis, 1989

John Albert Southern Lecturer, Furman University, 1989

Distinguished Visiting Lecturer, University of Texas at Austin, 1989

Procter and Gamble Lecturer, University of Illinois at Champaign- Urbana, 1988

Xerox Lecturer, Simon Fraser University, 1988

Marvel-Monsanto Lecturer, University of Arizona, 1988

Appleton Lecturer, Brown University, 1988

Walter J. Chute Distinguished Lecturer, Dalhousie University, 1987

Edgar Fahs Smith Lecturer, University of Pennsylvania, 1987

Charles A. McDowell Lecturer in Chemical Physics, University of British Columbia, 1987

Weizmann Memorial Lecturer, Weizmann Institute, Rehovot, Israel, 1986

Kirkwood Lecturer, Yale University, New Haven Section of the American Chemical Society, 1986

Friend E. Clark Lecturer, West Virginia University, 1986

Michelson-Morley Lecturer, Case Western Reserve University, 1986

Fritz London Memorial Lecturer, Duke University, 1986

Merck Distinguished Lecturer, Rutgers University, 1986

"Frontiers of Science" Distinguished Visiting Professor, University of Florida, 1986

Camille and Henry Dreyfus Lecturer, Dartmouth College, 1985

Davis Lecturer, University of New Orleans, 1985

Priestley Lecturer, Pennsylvania State University, 1985

Coover Lecturer, Iowa State University, 1985

Francis E. Blacet Lecturer, University of California at Los Angeles, 1985

Plenary Lecturer, Lasers '84, 1984

John E. Willard Lecturer, University of Wisconsin, 1984

Evans Lecturer, Ohio State University, 1984

"Frontiers in Chemical Research" Distinguished Lecturer, Texas A&M University, 1984

Distinguished Scientist Lecturer, University of Arizona, 1983

ICPEAC Plenary Lecturer, XIII International Conference on the Physics of Electronic and Atomic Collisions, Berlin, Germany, 1983

William Draper Harkins Lecturer, University of Chicago, 1983

Falk-Plaut Lecturer, Columbia University, 1983

Dreyfus Scholar in Residence, Hope College, 1982

Venable Lecturer, University of North Carolina, 1982

Albert W. Noyes Lecturer, University of Texas at Austin, 1982

Jeremy Musher Memorial Lecturer, Hebrew University, 1982

Guggenheim Lecturer, Reading University, 1982

Hinschelwood Lecturer, Oxford University, 1982

Research Scholar, Drew University, 1981

University Professor, University of Arkansas, 1981

Honor Lecturer in Chemistry, Arizona State University, 1981

McGregory Lecturer, Colgate College, 1980

Baker Lecturer, Cornell University, 1980

Kolthoff Lecturer, University of Minnesota, 1980

William Pyle Philips Lecturer in Chemistry, Haverford College, 1980

Frank T. Gucker Lecturer in Chemistry, Indiana University, 1979

Peter C. Reilly Lecturer, University of Notre Dame, 1979

Francis Clifford Phillips Lecturer, University of Pittsburgh, 1979

Distinguished Visiting Professor, Michigan State University, 1978

Edward U. Condon Lecturer in Chemical Physics, University of Colorado, 1977

Distinguished University Lecturer, University of Utah, 1977

Sherwin Williams Lecturer, University of Illinois, 1977

Frontiers in Chemistry Lecturer, Wayne State University, 1977

Westinghouse Invited Lecturer in Chemistry, Pittsburgh, Pennsylvania, 1976

FMC Lecturer, Princeton University, 1976

Harold Herborg Nielsen Lecturer, Ohio State University, 1975

Arthur D. Little Visiting Professor, Massachusetts Institute of Technology, 1972